

## CLAIMS

*Sub A1*  
What is claimed is:

1. 1. A method for generating a file object identifier comprising the steps:
  2. (a) allocating memory for said identifier;
  3. (b) storing in said allocated memory the value of the disk volume holding the file  
4. object;
  5. (c) storing in said allocated memory the value of the disk block holding the file  
6. object; and
  7. (d) storing in said allocated memory the value of the offset within said disk block  
8. holding the file object, said offset computed in multi-byte increments.
1. 2. The method of claim 1 wherein said file object is one of a file, a directory, and a  
2. symbolic link.
1. 3. The method of claim 1 wherein said memory allocated for said identifier is 32  
2. bits.
1. 4. The method of claim 1 wherein the value of the disk volume holding the file  
2. object is stored in 4 bits of said allocated memory.
1. 5. The method of claim 1 wherein the value of the disk block holding the file object  
2. is stored in 23 bits of said allocated memory.
1. 6. The method of claim 1 wherein the value of the offset within said disk block  
2. holding the file object is stored in 5 bits of said allocated memory.
1. 7. The method of claim 1 wherein the value of the multi-byte offset increment within  
2. said disk block holding the file object is at least 128 bytes.
1. 8. The method of claim 1 wherein said file object identifier is a POSIX file serial  
2. number.

1        9. A method for mapping a first file object identifier having a first bit size to a  
2 second file object identifier having a second bit size comprising the steps:  
3            (a) receiving said first file object identifier associated with a file object;  
4            (b) transforming said first file object identifier into said second file object  
5 identifier based on at least one file system characteristic; and  
6            (c) providing said second file object identifier to facilitate access to said file  
7 object.

1        10. The method of claim 9 wherein said file object is one of a file, a directory, and a  
2 symbolic link.

1        11. The method of claim 9 wherein said second bit size is less than said first bit size.

1        12. The method of claim 9 wherein said first file object identifier comprises a disk  
2 volume value, a disk block value and a block offset value.

1        13. The method of claim 9 wherein said at least one file system characteristic  
2 comprises limiting the number of disks available in any logical volume to a 4 bit value.

1        14. The method of claim 9 wherein said at least one file system characteristic  
2 comprises limiting the address granularity within a disk block to at least 32 bytes.

1        15. The method of claim 9 wherein said at least one file system characteristic  
2 comprises limiting file lengths to at least 128 bytes.

1        16. The method of claim 9 wherein said second file object identifier is a POSIX file  
2 serial number.

1        17. An article of manufacture having computer-readable program means embodied  
2 therein for mapping a first file object identifier having a first bit size to a second file  
3 object identifier having a second bit size, the article comprising:

4           (a) computer-readable program means for receiving said first file object identifier  
5        associated with a file object;  
6           (b) computer-readable program means for transforming said first file object  
7        identifier into said second file object identifier based on at least one file system  
8        characteristic; and  
9           (c) computer-readable programs means for providing said second file object  
10      identifier to facilitate access to said file object.

1   18.   The article of manufacture of claim 17 wherein said file object is one of a file, a  
2        directory, and a symbolic link.

1   19.   The article of manufacture of claim 17 wherein said second bit size is less than  
2        said first bit size.

1   20.   The article of manufacture of claim 17 wherein said first file object identifier  
2        comprises a disk volume value, a disk block value and a block offset value.

1   21.   The article of manufacture of claim 17 wherein said at least one file system  
2        characteristic comprises limiting the number of disks available in any logical volume to a  
3        4 bit value.

1   22.   The article of manufacture of claim 17 wherein said at least one file system  
2        characteristic comprises limiting the address granularity within a disk block to at least 32  
3        bytes.

1   23.   The article of manufacture of claim 17 wherein said at least one file system  
2        characteristic comprises limiting file lengths to at least 128 bytes.

1   24.   The article of manufacture of claim 17 wherein said second file object identifier is  
2        a POSIX file serial number.

1       25. A fault-tolerant computer having a proprietary operating system and support for  
2 standards-compliant file operations comprising:

3              two central processing units (CPUs), operating synchronously;  
4              two memory modules, each associated with one of said CPUs;  
5              an operating system, providing operating system functionality and comprising a  
6 standards-compliant interface and a proprietary interface; and  
7              an application program, invoking said standards-compliant interface.

1       26. The fault-tolerant computer of claim 22 wherein said proprietary operating system  
2 is Stratus Virtual Operating System (VOS).

1       27. The fault-tolerant computer of claim 22 wherein said standards-compliant file  
2 operations are POSIX file operations.

1       28. The fault-tolerant computer of claim 22 wherein said standards-compliant  
2 interface is a POSIX interface.

1       29. A method for mapping a first file object identifier having a first bit size to a  
2 second file object identifier having a second bit size comprising the steps:  
3              (a) receiving said first file object identifier associated with a file object;  
4              (b) extracting a disk block value and a disk volume value from said first file  
5 object identifier;  
6              (c) locating a file object in a location on a disk specified by said extracted disk  
7 block value and said extracted disk volume value;  
8              (d) computing a temporary file object identifier for said located file object;  
9              (e) iterating step (d) for file objects in said specified location on the disk until the  
10 temporary file object identifier matches said first file object identifier;  
11              (f) computing a second file object identifier for said file object with said  
12 temporary file object identifier matching said first file object identifier; and  
13              (g) providing said second file object identifier.

1       30.     The method of claim 29 wherein said first file object identifier is a POSIX file  
2       serial number.